

RECLAMATION

Managing Water in the West

Draft Environmental Assessment

Henry Miller Reclamation District No. 2131 Boundary Drain and West Delta Drain Project

EA-07-34



U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
South-Central California Area Office
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List of Acronyms, Abbreviations and Definitions of Terms

Agreement	Streambed Alteration Agreement
BMPs	Best Management Practices
CNDDB	California Natural Diversity Database
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
DFG	California Department of Fish and Game
ESA	Federal Endangered Species Act
HMRD	Henry Miller Reclamation District
NHPA	National Historic Preservation Act
Reclamation	Bureau of Reclamation
RRA	Reclamation Reform Act
SCCAO	South-Central California Area Office
Service	United States Fish and Wildlife Service
SHPO	California State Historic Preservation Officer

Section 1 Purpose and Need for Action

1.1 Background

Under the Water Conservation Field Service Program, Reclamation carries out water conservation activities in cooperation with Reclamation contractors. These activities include but are not limited to: development of water conservation plans, technical assistance, demonstration projects, grants, cooperative agreements, partnerships and irrigation efficiency improvements. These activities are necessary to achieve Reclamation goals and fulfill requirements under Reclamation Law (Section 210 of the Reclamation Reform Act [RRA] of 1982 and the Central Valley Project Improvement Act [PL 102-575, Title 34] of 1992). Full implementation of the Water Conservation Field Service Program is essential for Reclamation to fulfill responsibilities under the RRA.

The Henry Miller Reclamation District # 2131 (HMRD) is located within the County of Merced, five miles north of the City of Dos Palos and 10 miles northeast of the City of Los Banos. The HMRD receives 163,600 acre feet of water per year to be used exclusively for agricultural irrigation. The HMRD measures the incoming water from the head of the Arroyo Canal and other locations with Sontek Argonaut SL's that were installed in 2005. This type of device measures the actual flow by constantly recording velocities and water depth. These devices use an Acoustic Doppler system for flow determination. Despite these recent improvements, the HMRD has problems with occasional spills and some inaccuracies in water flow measurement.

1.2 Purpose and Need

The purpose of the project is to allow for more accurate and less time-consuming measurement of flow rate and water quality.

1.3 Applicable Regulatory Requirements

The Proposed Action would require permits from the United States Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act, and Water Quality Certifications pursuant to Section 401 of the Clean Water Act from the California Regional Water Quality Control Board, Central Valley Region. The California Department of Fish and Game (DFG) is not requiring a Streambed Alteration Agreement (Agreement) for the Boundary Drain site (please see Appendix 1), but one is required for the West Delta Drain site, although DFG has determined that the project is exempt from the California Environmental Quality Act (Appendix 1). A consultation with the State Historic Preservation Officer (SHPO) is required, pursuant to Section 106 of the National Historic Preservation Act (NHPA).

1.4 Potential Issues

This Proposed Action was categorically excluded from further analysis under the National Environmental Policy Act (NEPA). However, upon examination of a draft categorical exclusion checklist, potential extraordinary circumstances were identified with regard to the resources listed below.

- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Waters of the United States

Section 2 Alternatives Including Proposed Action

2.1 Alternative A – No Action

Under the No Action Alternative, Reclamation would not award a Water Conservation Field Service Grant to HMRD. The HMRD has not identified other sources of funding for the project and thus it is likely that no upgrades of flow rate and water quality monitoring equipment would occur.

2.2 Alternative B – Proposed Action

Reclamation proposes to award a Water Conservation Field Service Grant to HMRD for its project that would upgrade flow rate and water quality monitoring equipment at two locations within its district boundaries. These two locations are in the Boundary Drain and the West Delta Drain.

The data collected from the upgraded devices would be sent to the Water Master at HMRD in real time to be used for efficient programming, thereby reducing time spent on water monitoring, preventing spills, and helping to ensure accurate water deliveries.

Project Location

The project is located in Township 9 South, Range 11 East, Section 32, Los Banos Quadrangle for the Boundary Drain site, and Township 9 South, Range 11 East, Section 21, San Luis Ranch Quadrangle for the West Delta Drain site. Please see Figures 2-1 and 2-2 for an overview of the site locations. The sites are near DFG's Los Banos Wildlife Management Area. Please see Appendix 2 for site photographs.

Proposed Work for Boundary Drain Site

Approximately 36 linear feet of concrete would be installed along the bed of the drain (approximately 12 feet wide) and 6 feet high concrete side walls would be erected along the length creating a narrow artificial channel within the existing earthen drain. The maximum thickness would be eight inches. A flow meter apparatus would be attached to the inside wall of the artificial channel to collect data for water conservation purposes. A small footbridge would span the drain in order to provide access to the flow meter. This work would be confined entirely to the aquatic environment and would not have any permanent impacts to the banks of the drain or existing vegetation. A temporary area of approximately 10 feet upstream and downstream would be affected by construction activities, resulting in 0.012 acres of total disturbed area (temporary and permanent). Temporary disturbance would occur on approximately 20 linear feet (0.002 acres) and permanent disturbance would occur on approximately 36 linear feet (0.010 acres) of the Boundary Drain.

Installation of the flow meter may require work within the wetted portion of the Boundary Drain. If water is present during project initiation, temporary coffer dams would be constructed immediately upstream and downstream of the project site and water would be diverted around the site. A portable pump would drain water through an aluminum mainline

around the construction site and discharge it downstream of the construction area. A sump pump would be installed within the construction site to remove water arising from groundwater sources and the pumped water would be discharged downstream of the project site. The temporary water bypass would be removed immediately following construction. The entire project at this site is expected to take 15 days to complete. Work must take place between May 31st and October 1st (DFG is requiring that the work be done between May 31st and October 15th, but the Service requirement for avoidance of giant garter snake impacts is May 1st to October 1st)¹. Please see Figure 2-3 for an aerial photo of the project site.

Staging and access areas would be located on graded areas on the top of the existing drain berm, and site access would be limited to existing roads. Likewise, the footings associated with the footbridge would be located on the existing graded areas, and construction of the footbridge would not impact any vegetation. Construction equipment would include an excavator, boom truck, concrete truck, dump truck, pick-up trucks, and drain pumps.

Proposed Work for West Delta Drain Site

The existing check structure and discharge pipe would be removed and replaced. The new flow meter would be confined completely within the original site and would not have any permanent impacts to the banks of the drain or existing vegetation. Approximately 45 linear feet of concrete would be installed along the bed of the drain (approximately 6 feet wide) and 6 feet high concrete side walls would be erected along the length creating a narrow artificial channel within the existing earthen drain. The maximum thickness would be eight inches. The project would result in temporary disturbance to approximately 20 linear feet (0.003 acres) and permanent disturbance to 45 linear feet (0.006 acres) within the West Delta Drain, for a total of approximately 0.009 acres of disturbance.

The replacement of the existing check structure for the installation of the flow meter may require work within the wetted portion of the West Delta Drain. By the time of construction the site will most likely be dry, due to the fact the irrigation season would be over, and because of the current dry water year. However, if any water is still present during project initiation, temporary coffer dams would be constructed immediately upstream and downstream of the project site and water would be by passed around the site. A portable pump would drain water around the construction site and discharge it downstream of the construction area. A sump pump would be installed within the construction site to remove water arising from groundwater sources and the pumped water would be discharged downstream of the project site. The temporary water bypass would be removed immediately following construction. The entire project at this site is expected to take 15 days to complete. Work must take place between May 31st and October 1st. There are additional potential restrictions placed by the DFG (no construction from February 15th through July 1st) unless surveys/avoidance measures can protect migratory birds. Please see Figure 2-4 for an aerial photo of the project site.

¹ It is possible that, following discussions between HMRD, DFG, and the Service, some work may be allowed outside of this avoidance window, with the two regulatory agencies' approval. If a change in proposed timing occurs, the final NEPA document would be updated to reflect the change.

Staging and access areas would be located on graded areas and the top of the existing drain berm, and site access would be limited to existing roads. Construction equipment would include an excavator, concrete truck, dump truck, pick-up trucks and drain pumps.

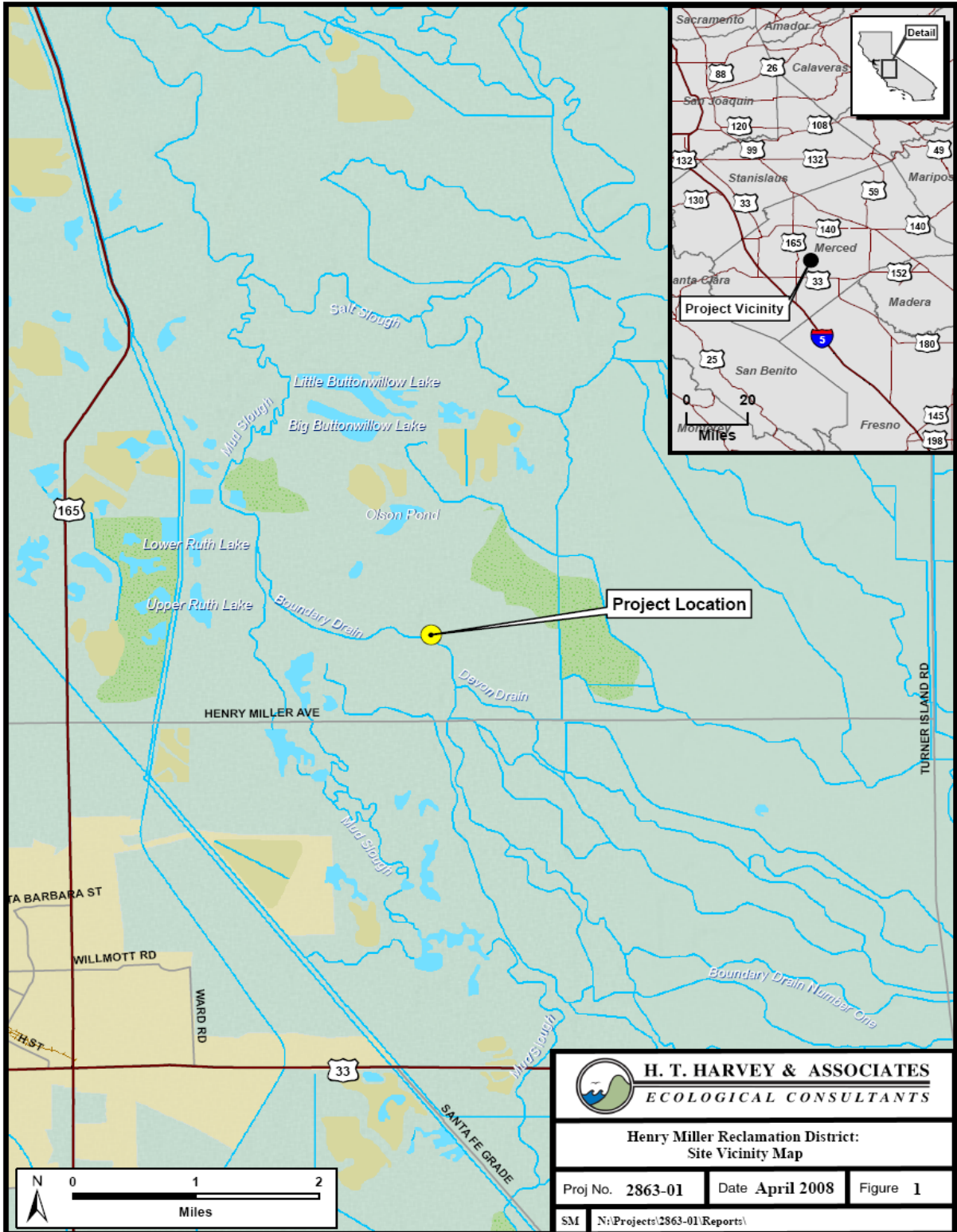


Figure 2-1. Boundary Drain site.

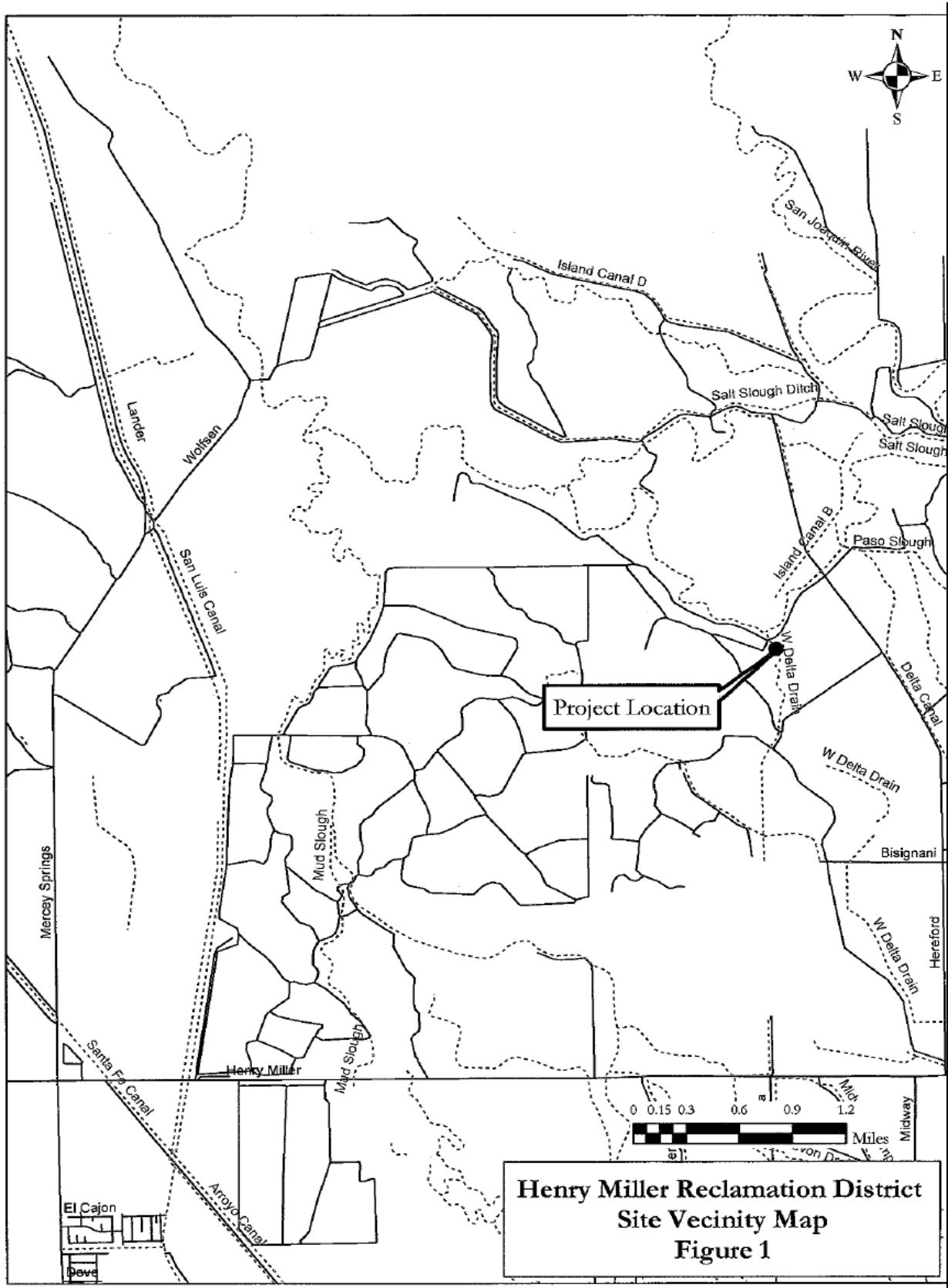


Figure 2-2. West Delta Drain site.

Environmental Protection Measures

The following measures are incorporated into the Proposed Action to protect water quality, common aquatic species, and the giant garter snake (*Thamnophis gigas*), and other species that the DFG has determined are potentially of concern for the West Delta Drain site.

Boundary Drain

This first set of measures listed are those required of the HMRD for work at the Boundary Drain site by DFG (although no Agreement is required for this site), and by Reclamation (some of the measures are giant garter snake avoidance measures obtained from the Service).

Diversion Plan

The diversion plan would implement the following provisions: a) flow diversion would be done in a manner that prevents pollution and/or siltation, and which provides flow to downstream resources; b) flows to downstream reaches of the drain shall be provided during all times that the natural flow would support common aquatic life; c) flow shall be of sufficient quality and quantity, and of appropriate temperature, to support common aquatic life within the drain; and d) normal flows shall be restored to the affected channel immediately upon completion of construction activities.

Water Quality Protection Measures

Construction would require minor grading of the soils in the project site. After construction, runoff would be generated from the recently re-contoured drain banks. Therefore, the Proposed Action has the potential to affect water quality. The HMRD would implement Best Management Practices (BMPs) to control or reduce the discharge of pollutants, reducing any impacts on water quality and downstream resources. Raw cement, concrete (including washings), coating materials, oil or petroleum products, or any other substances which could be hazardous to fish or wildlife resources shall be prevented from contaminating the soil and/or entering waters of the United States. Furthermore, project-generated debris shall be removed from the channels and from areas where such materials could be washed into the channels.

Conservation Measures for Biological Resources

The HMRD would implement the following measures to avoid and/or minimize impacts on biological resources:

- Project activities shall take place between May 31st and October 1st, to coincide with the active period for the giant garter snake, when the snakes are aboveground and better able to avoid danger.
- Any dewatered habitat shall remain dry for at least 15 consecutive days after April 15th and prior to excavating or filling of the dewatered habitat, in order to protect the giant garter snake.
- The HMRD shall identify the upstream and downstream limits of the required encroachment in the Boundary Drain and any vehicle access corridors. These work limits must be identified and flagged for the duration of construction. Areas outside the identified work limits shall not be disturbed.

- Pre-construction field surveys for special-status wildlife species shall be conducted no sooner than three days prior to any site preparation, construction, or other project related activities. Findings, including negative findings, shall be submitted to the DFG and U.S. Fish and Wildlife Service (Service) in written format prior to any site preparation activities.
- Should any sensitive species be found during pre-project surveys or during any phase of construction, or if work must be done in identified areas containing sensitive species or habitat types during sensitive periods, the HMRD shall develop and implement a plan for the protection of these species. This plan shall be approved by the DFG and Service prior to commencing work or continuing work once sensitive species are discovered. The results of any surveys and any protective measures instituted as a part of the protection and monitoring plan must be provided to the DFG and Service within one week from implementation. The HMRD shall be responsible for reporting all observations of threatened/endangered species or of species of special concern to the California Natural Diversity Data Base (CNDDDB) within ten (10) days of sighting.
- A qualified biological monitor shall be required on-site during clearing, grubbing, rough grading, and excavation operations, and shall conduct surveys sufficient to determine presence/absence for all species identified as occurring or potentially occurring on-site and immediately adjacent to the project location.
- If any life stages of any native vertebrate species (those not Fully Protected or listed under the California Endangered Species Act or Federal Endangered Species Act [ESA]) are found in the path of destruction, the monitor shall relocate the species to a safe location. Exclusionary devices must be erected to prevent the migration into or the return of species into the work site. Should DFG or Service personnel visit the sites during clearing, grubbing, rough grading, and excavation activities and no biological monitor is available, construction activities shall be halted until the biological monitor is present.
- The HMRD shall have a qualified wildlife biologist and qualified botanists prepare for distribution to all HMRD contractors, subcontractors, project supervisors, and consignees a "Contractor Education Brochure" with pictures and descriptions of all sensitive, threatened, and endangered plant and animal species, known to occur, or potentially occurring on the site. HMRD's contractors and consignees shall be instructed to bring to the attention of the project biological monitor any sightings of species described in the brochure. A copy of this brochure shall be submitted to the DFG and Service for approval prior to any site preparation activities.
- If rare, threatened or endangered species, or species of special concern are found within 500 feet of the work area, the HMRD must contact the DFG and Service immediately of the sighting and shall request an on-site inspection by DFG and Service representatives (to be done at the discretion of the DFG and Service) to determine if work shall begin/proceed. If work is in progress when sightings are made, the HMRD shall cease all work within 500 feet of the area in which the

sighting(s) occur and must contact the DFG and Service immediately to determine if work shall recommence.

West Delta Drain

This second set of measures is that found in the Agreement (Appendix 1) from the DFG. The DFG is requiring the Agreement in order to minimize and mitigate adverse impacts to the sensitive fish and wildlife resources that may occupy the area of the West Delta Drain, including the State and Federally listed giant garter snake, western pond turtle (*Actinemys marmorata*) which is a State species of special concern, Valley sacaton grassland, and the immediate adjacent habitat, as well as birds, mammals, fish, reptiles, amphibians, invertebrates and plants that comprise the local ecosystem². Additionally, Reclamation is requiring the implementation of the first two conservation measures listed above for Biological Resources at the Boundary Drain site. Please note that "Project" in the following measures applies specifically to work at the West Delta Drain site.

General

1. Agreed activities within the stream may commence after the DFG has signed the Agreement and pre-Project protective features and Provisions are implemented. The Agreement shall remain in effect for three (3) years beginning on the date signed by the DFG. If the Project is not completed prior to the expiration date defined above, the HMRD shall contact the DFG to negotiate a new expiration date and any new requirements.
2. The HMRD shall submit a construction/work schedule to the DFG (mail, or fax to (559) 243-4020, with reference to Agreement 2008-0155-R4) prior to beginning any activities covered by the Agreement. The HMRD shall also notify the DFG upon the completion of the activities covered by the Agreement.
3. Prior to starting Project activities, all workers shall have received training from the HMRD's staff, or approved alternate trainer, on the contents of the Agreement, the resources at stake, and the legal consequences of non-compliance.

Flagging/Fencing

The HMRD shall identify the upstream and downstream limits of the required encroachment into West Delta Drain, and any required vehicle access corridors. These work area limits shall be identified with brightly-colored flagging. These limits shall be identified by the HMRD prior to construction. Flagging shall be maintained in good repair for the duration of the Project. All areas within the riparian zone/floodplain of the stream, but beyond the identified work area limits, shall be considered Environmentally Sensitive Areas and shall not be disturbed.

Listed/Sensitive Species

1. The Agreement does not allow for the "take," or "incidental take," of any State- or Federally listed threatened or endangered species. The HMRD affirms that no "take" of listed species will occur as a result of this Project and will take prudent

² HMRD must implement these measures and they are therefore part of the Proposed Action. However, see the Affected Environment section for information on the occurrence of these resources in the area.

measures to ensure that all "take" is avoided. The HMRD acknowledges that they fully understand that they do not have State "incidental take" authority. If any State- or Federally listed threatened or endangered species occur within the proposed work area or could be impacted by the work proposed, and thus "taken" as a result of Project activities, the HMRD is responsible for obtaining and complying with required State and Federal threatened and endangered species permits or other written authorization before proceeding with this Project.

2. Liability for any "take," or "incidental take," of such listed species remains the separate responsibility of the HMRD for the duration of the Project.
3. The HMRD shall immediately notify the DFG of the discovery of any such rare, threatened, or endangered species prior to and/or during construction.
4. Pre-activity surveys for sensitive species including rare, threatened, endangered, and fully-protected species shall be conducted by a qualified biologist within 30 days prior to commencement of the proposed construction activity or as specified within current survey protocols. The HMRD shall notify the DFG of the discovery of any such rare, threatened, or endangered species prior to commencement of construction. Surveys must be conducted on the "work area" and access routes. The purpose of pre-activity surveys is to avoid intentional and "incidental take," confirm previous observations, identify any subsequent occupation of the stream corridor and other work areas by listed species, and clearly mark all resources to be avoided by Project activities. All surveys for threatened or endangered species shall be done in accordance with the appropriate protocols. Surveys for any State threatened, endangered, or fully-protected species shall be completed unless appropriate preconstruction surveys determine the lack of habitat for these species or potential habitat is flagged and avoided.
5. A qualified biological monitor shall be available on-site during all Project activities. The biologist shall walk immediately ahead of the equipment during all ground disturbing activities, as they occur, in areas that have not been recently disturbed.
6. If any confirmed precincts, burrows, or occupied habitats are discovered on, or within 250 feet of any work site, all potentially disturbing activities shall be halted immediately and work shall not resume until protective buffer zones are established in consultation with the DFG.

Wildlife

If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

Aquatic and Semi-aquatic Wildlife

1. A qualified biologist shall monitor the affected section of West Delta Drain to ensure aquatic animals are not stranded due to diversion and dewatering activities. Reasonable efforts shall be made to carefully capture and transport stranded aquatic wildlife to upstream or downstream areas as appropriate. Captured aquatic animals shall be placed in buckets filled with water from West Delta Drain prior to transport.

2. All in-stream work must be performed in isolation from surface water flow. The HMRD shall construct a temporary cofferdam to divert flows around in-stream work areas (see Diversion and Dewatering). Upon Project completion, diversion structures shall be removed from the stream in such a manner as to allow for the least amount of disturbance to the substrate. Clean river gravel, if used, may be left in the stream, but stream flow must be returned to its natural course.
3. If dewatering of the work site within the cofferdam occurs by pumping, intakes shall be completely screened with wire mesh not larger than 0.5-millimeters to prevent aquatic/semiaquatic wildlife from entering the pump system. Water shall be released or pumped in a manner and at an appropriate rate to maintain unimpeded downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that returns stream flow to its natural channel with the least disturbance to the substrate.

Birds

To protect nesting birds, construction shall not occur from February 15th through July 1st unless the following surveys are completed by a qualified biologist.

- Raptors: Survey for nesting activity of raptors, with emphasis on Swainson's hawks (*Buteo swainsoni*), within a 500-foot radius of the construction site. Surveys shall be conducted at appropriate nesting times and concentrate on mature trees. If any active nests are observed, these nests and nest trees shall be designated an Environmentally Sensitive Area and protected (while occupied) during Project construction.
- Songbird Species: Survey riparian areas for nesting songbird activity within a 100-foot radius of the defined work area two (2) to three (3) weeks before construction begins. If any nesting activity is found, the HMRD shall contact the DFG and avoidance, minimization, and mitigation measures, specific to each incident, shall be developed.
- Swallows: If work cannot be avoided on the check structure when it would disturb nesting swallows (March 1st through September 1st), then prior to February 15th of each year, the HMRD, under the guidance of a qualified biologist, shall remove all existing nests which would be destroyed by the Project. The HMRD shall continue to discourage new nest building in places where they would be disturbed, using methods developed in consultation with the DFG. Following the initial nest removal, continued removal of new nests and hazing must be repeated as long as the swallows continue to attempt to build nests, or until a swallow exclusion device is installed. Where disturbance will occur, nesting must be discouraged throughout the Project term.

Vegetation

1. The disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations (with the exception of exotic plant species) and shall only occur within the defined work area. Precautions shall be taken to avoid other damage to vegetation by people or equipment.

2. No removal of native riparian shrubs or trees will occur as a result of Project implementation.

Diversion and Dewatering (also see Wildlife and Aquatic and Semi-aquatic Wildlife 1-2)

1. Prior to any ground disturbance and dewatering of the stream, the HMRD shall submit a Diversion and Dewatering Plan for DFG review and approval. Water drafting, pumping, or other water diversion shall be done in a manner that is not harmful to fish or other aquatic or semi-aquatic wildlife. Pump inflow tubes or hoses shall be contained within a 0.5-millimeter mesh-screened cage to exclude aquatic wildlife that may otherwise be harmed in the process.
2. Any dewatering activities shall be done in a manner that prevents pollution and/or siltation of downstream reaches.

Fish Passage and Sufficient Downstream Flow

1. When any artificial obstruction is being constructed, maintained, or placed in operation, within the active channel, sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the obstruction pursuant to Fish and Game Code Section 5937.
2. Artificial obstructions placed within the stream shall not represent a barrier to the natural movement of fish pursuant to Fish and Game Code Section 5948. If the DFG determines installed structures are not providing adequate passage the HMRD shall make any and all necessary modifications to correct the problem.

Structures

The HMRD confirms that any and all structures and constructed features shall be properly aligned and otherwise engineered, installed, and maintained, to assure resistance to washout, and to erosion of the stream bed, stream banks and/or fill and that they will not cause long-term changes in water flows that adversely modify the existing upstream or downstream stream bed/bank contours or increase sediment deposition.

Erosion

1. The HMRD shall develop plans to control erosion and stabilize areas subject to ground disturbance during construction. A Construction Period Erosion Prevention and Contingency Plan shall be submitted for DFG approval and implemented prior to commencement of Project activities. The Plan may include or be comprised of a statement of BMPs, winterization plan, etc. used to prevent pollution of surface water.
2. Silty water shall not be discharged into the stream, or created within the stream. The HMRD's management measures addressing siltation shall be included in its Construction Period Erosion Prevention and Contingency Plan described above. Precautions to minimize siltation may require that instream work site be isolated so that silt or other deleterious materials are not allowed to pass into the stream and to downstream reaches. If it is determined that silt levels resulting from Project-related activities constitute a threat to aquatic life, activities associated with the

siltation shall be halted until effective DFG-approved control devices are installed, or abatement procedures are initiated.

3. All disturbed soils within the Project site shall be stabilized to reduce erosion potential, both during and following construction. Planting, seeding with native species, and mulching is conditionally acceptable. Where suitable vegetation cannot reasonably be expected to become established, non-erodible material shall be used for such stabilization. Any installation of non-erodible material, not included in the original Project description, shall be coordinated with the DFG. Coordination may include the negotiation of additional Agreement provisions for this activity (see Restoration below).

Fill/Spoil

1. Dredged material and spoil storage sites shall not be located within the stream or in adjacent wetlands, where it will be washed into the stream or adjacent wetland, or where it will cover aquatic or riparian vegetation.
2. Rock, gravel, and/or other materials shall not be imported into or moved within the stream, except as otherwise addressed in the Agreement.

Vehicles

1. Vehicles shall not be operated in areas where surface water is present. Vehicles shall only operate in the channel during naturally dry conditions or while the affected section of stream is dewatered (see Diversion and Dewatering above).
2. Vehicles operated in the stream channel shall be limited to the minimum necessary to complete Project activities. Ingress and egress corridors shall be minimized and restricted to predetermined locations where impacts to riparian vegetation are minimal. All other areas adjacent to the work site shall be considered an Environmentally Sensitive Area and shall remain off-limits to construction equipment. Vehicle corridors and the Environmentally Sensitive Area shall be identified by the HMRD and shall be fenced/flagged as described above.
3. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that could be deleterious to aquatic and terrestrial life.
4. Fueling and maintenance of vehicles, other equipment, and staging areas shall occur at least 75 feet from any riparian habitat or water body. The HMRD shall ensure contamination of habitat does not occur during such operations.

Pollution

1. Raw cement, concrete or washings thereof, asphalt, drilling fluids or lubricants, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to fish or wildlife resulting from or disturbed by Project-related activities, shall be prevented from contaminating the soil and/or entering the channel.

2. Prior to the onset of work, the HMRD shall provide the DFG with a Spill Response Plan to facilitate prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The cleanup of all spilled materials shall begin immediately. The DFG shall be notified immediately by the HMRD of any spills.
3. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream, shall be positioned over drip-pans.
4. All Project-generated debris, materials and rubbish shall not be deposited in the stream and shall be removed from areas where such materials could be washed into the stream.
5. The HMRD and all contractors shall be subject to the water pollution regulations found in the Department of Fish and Game Code Sections 5650 and 12015.

Restoration

1. Project-generated material and debris shall be removed from the Project site following completion of construction. All Project-generated debris shall be disposed of in a legal manner.
2. Structures and associated materials, not designed to withstand high seasonal flows, shall be removed to areas above the high-water mark before such flows occur.
3. Restoration shall include the revegetation of all disturbed soils and new fill, including recontoured slopes and all other cleared areas, with locally native grasses, riparian vegetation, or other native plants as appropriate.

A Final Project Report must be submitted within 30 days after the Project is completed. The final report shall summarize the Project construction, including any problems relating to the protective measures of the Agreement. "Before and after" photo documentation of the Project site shall be required.

In addition to the above monitoring and reporting requirements, the DFG requires that the HMRD:

- Immediately notify the DFG in writing if monitoring reveals that any of the protective measures were not implemented during the period indicated in this program, or if it anticipates that measures will not be implemented within the time period specified.
- Immediately notify the DFG if any of the protective measures are not providing the level of protection that is appropriate for the impact that is occurring, and recommendations, if any, for alternative protective measures.

The DFG shall verify compliance with protective measures to ensure the accuracy of the HMRD's monitoring and reporting efforts. The DFG may, at its sole discretion, review relevant Project documents maintained by the HMRD, interview the HMRD's employees and agents, inspect the Project area, and take other actions to assess compliance with or effectiveness of protective measures for the Project.



Figure 2-2. Aerial photo of Boundary Drain site.

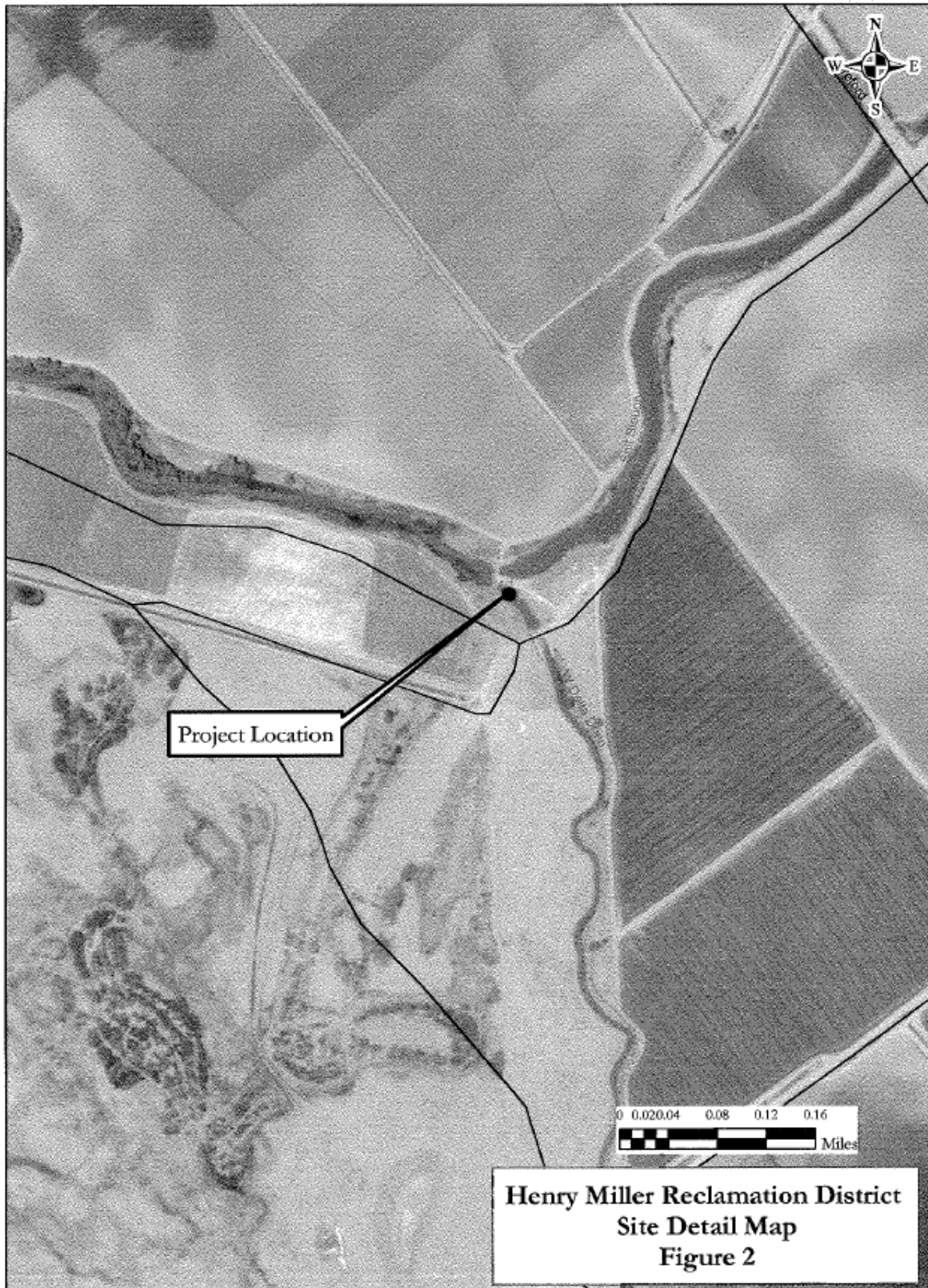


Figure 2-4. Aerial photo of West Delta Drain site.

Section 3 Affected Environment & Environmental Consequences

3.1 Biological Resources

3.1.1 Affected Environment

Special-status species are plants and animals that are legally protected under the State and Federal Endangered Species Acts or other regulations, and other species that are considered rare by the scientific community. A species list from the Service was most recently requested on November 4, 2008, which was last updated on January 31, 2008. Please see Appendix 3 for the list. The California Natural Diversity Database (CNDDB) was also accessed for species occurrence records (August 2008 data). A site visit (Boundary Drain) was made by Reclamation staff on April 17, 2007, and H.T. Harvey & Associates performed reconnaissance-level surveys of both the Boundary Drain and West Delta Drain sites. Table 3-1 below lists the special-status species that may occur or have been known to occur within the two quadrangles encompassing the project area. No critical habitat occurs in the project area. The Boundary Drain project area overlaps a CNDDB polygon for Cismontane Alkali Marsh. However, the area consists of only the artificial drain, disturbed berms/access roads, and surrounding agricultural fields.

The Boundary Drain site is comprised of an artificial drainage channel that conveys water from the project area northwest into Mud Slough. The channel is an artificial drainage feature dominated by ruderal herbaceous plants, and the banks are lined with non-native plants such as Russian thistle (*Salsola tragus*), prickly lettuce (*Lactuca serriola*), and common sow thistle (*Sonchus oleraceus*), and native plants such as curly dock (*Rumex crispus*), heliotrope (*Heliotropium curassavicum*), and saltgrass (*Distichlis spicata*). During reconnaissance surveys, riparian vegetation was not observed on or near the project site.

The West Delta Drain site is comprised of an artificial drainage channel that conveys water from the project area northwest into Salt Slough. The channel is an artificial drainage feature dominated by ruderal herbaceous plants, and the banks are lined with non-native plants. During reconnaissance surveys, riparian vegetation was not observed on or near the project site.

Both drainage channels are subject to periodic vegetation control, including berm mowing and aquatic spraying of herbicides per the HMRD's permits issued by the State Water Resources Control Board and Merced County (see Appendix 4).

The project sites and vicinity provide low quality habitat for common and/or special status stream-dependent terrestrial wildlife. The giant garter snake, a Federally threatened species, has been recorded southwest of the project site (Figure 3-1). This species has suffered near if not complete extirpation in the Tulare Basin, and great reduction in numbers in the remainder of the San Joaquin Valley (Service 1999).

Terrestrial habitat for the giant garter snake includes adjacent uplands which provide areas for basking, retreats, and over-wintering. Basking takes place in tules, cattails, saltbush, and shrubs over-hanging the water, patches of floating vegetation including waterweed, on rice checks, and

on grassy banks (Service 1999). The giant garter snake typically inhabits small mammal burrows and other soil and/or rock crevices during the colder months of winter (i.e., October to April) (Hansen and Brode 1993; Wylie *et al.* 1996; Wylie *et al.* 2003). It also uses burrows as refuge from extreme heat during its active period (Wylie *et al.* 1997; Wylie *et al.* 2004). While individuals usually remain in close proximity to wetland habitats, the Biological Resources Division of the U.S. Geological Survey has documented snakes using burrows as much as 165 feet (50 meters) away from the marsh edge to escape extreme heat, and as far as 820 feet (250 meters) from the edge of marsh habitat for overwintering habitat (Wylie *et al.* 1997). Snakes typically select burrows with sunny exposures along south and west facing slopes (Service 1993).

The Boundary Drain and West Delta Drain sites provide low quality habitat for this species, although as the photographs in Appendix 2 show, the West Delta Drain site is much closer to suitable habitat. The banks of the drains are regularly mowed to restrict the growth of vegetation. Emergent vegetation such as cattails and bulrushes, used for escape cover and foraging habitat during the active season, is generally absent from the drain in the vicinity of the project impact area. Furthermore, uplands in the vicinity of the project sites consist of year-round active agriculture, primarily fields planted in corn and irrigated row crops such as alfalfa. These habitats do not provide suitable refugia during the snake's dormancy period in the winter. Due to these factors, giant garter snakes would not occupy the drain at the project sites on a permanent or regular basis. Habitat for all other special-status species is lacking in the project area.

There are no vernal pools or other seasonal ponds in the area, and thus no habitat for the western spadefoot toad, the California tiger salamander, fairy shrimp, tadpole shrimp, Hoover's spurge, prostrate vernal pool navarretia, or the vernal pool smallscale. Suitable upland habitat for the California tiger salamander and western spadefoot toad is lacking, due to agricultural activities. The California red-legged frog is believed to have been extirpated from the valley floor (Service 2002).

There is no suitable upland habitat for the western pond turtle at the Boundary Drain site; some suitable habitat may border the West Delta Drain site. The only upland areas that would be impacted are the berms (used for access and staging) and the immediately adjacent areas used for bypass construction. These areas are bordered by extensive agricultural areas and so upland species like the Fresno kangaroo rat, American badger, San Joaquin kit fox, and blunt-nosed leopard lizard are not expected to occur there.

Alkali grassland and alkali sink habitat does not occur in the project area, and therefore, there is no habitat for the alkali milk-vetch, for *Atriplex* spp., or the hispid bird's-beak. The Delta button-celery occurs in riparian scrub and seasonally wet areas, which are not found in the project area. Wright's trichocoronis occurs in roughly similar habitat and is therefore also not expected. Sanford's arrowhead was not seen during the reconnaissance-level surveys. The habitat in the project area may be suitable, but use of aquatic herbicides would likely prevent its occurrence.

There is very little vegetation along the channel margins, and it would not support species such as the Tricolored Blackbird or the Yellow Rail. There are no elderberry shrubs in the area, and so the valley elderberry longhorn beetle would not occur there. Riparian vegetation and suitable nesting trees for species such as the Swainson's Hawk are lacking, although the DFG is requiring

surveys for songbirds, and Swainson's Hawks and other nesting raptors at the West Delta Drain site unless the nesting season is avoided. The Northern Harrier might forage in the area, but due to the disturbance from nearby agriculture and maintenance activities along the drains, there are no suitable areas on the ground for nesting. Cliff swallows cannot nest under the check structure at the West Delta Drain site (see photographs in Appendix 2), although the DFG is requiring swallow exclusion if removal of the existing check structure cannot be done outside the nesting season.

The project area is outside of the Sacramento-San Joaquin Delta, to which the delta smelt is endemic. The west-side tributaries to the San Joaquin River do not support the Central Valley steelhead.

Table 3-1. Special status species for Boundary Drain and West Delta Drain sites.

Common Name	Scientific Name	Status ^a
Mammals		
Fresno kangaroo rat	<i>Dipodomys nitratooides exilis</i>	FE; SE
American badger	<i>Taxidea taxus</i>	CSC
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE; ST
Birds		
Tricolored Blackbird	<i>Agelaius tricolor</i>	FSC; CSC
Cackling (Aleutian Canada) Goose	<i>Branta hutchinsii leucopareia</i>	FD
Swainson's Hawk	<i>Buteo swainsoni</i>	FSC; ST
Northern Harrier	<i>Circus cyaneus</i>	CSC
Yellow Rail	<i>Coturnicops noveboracensis</i>	FSC; CSC
Reptiles		
western pond turtle	<i>Clemmys marmorata</i>	FSC; CSC
blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE; SE
giant garter snake	<i>Thamnophis gigas</i>	FT; ST
Amphibians		
California tiger salamander	<i>Ambystoma californiense</i>	FT; CSC
California red-legged frog	<i>Rana aurora draytonii</i>	FT; CSC
western spadefoot toad	<i>Spea (Scaphiopus) hammondi</i>	FSC; CSC
Fish		
delta smelt	<i>Hypomesus transpacificus</i>	FT; ST
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	FT
Invertebrates		
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	FE
longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	FE
vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT
valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT
vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	FE
Plants		
heartscale	<i>Atriplex cordulata</i>	CNPS 1B
brittlescale	<i>Atriplex depressa</i>	CNPS 1B
vernal pool smallscale	<i>Atriplex persistens</i>	CNPS 1B
alkali milk-vetch	<i>Astragalus tener</i> var. <i>tener</i>	CNPS 1B
Hoover's spurge	<i>Chamaesyce hooveri</i>	FT; CNPS 1B
hispid bird's-beak	<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>	CNPS 1B
Delta button-celery	<i>Eryngium racemosum</i>	SE; CNPS 1B
prostate vernal pool navarretia	<i>Navarretia prostrate</i>	CNPS 1B
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	CNPS 1B
Wright's trichocoronis	<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	CNPS 2
^a FE: Federally Endangered; FEET: Federally Threatened; FD: Federally Delisted; FSC: Federal Species of Concern; SE: State Endangered; ST: State Threatened; SFP: State Fully Protected; CSC: California Species of Special Concern; CNPS Special Plant Lists (List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere List 2: Plants Rare, Threatened, or Endangered in California, but more common elsewhere).		



CNDDDB Polygons for Boundary Drain Site

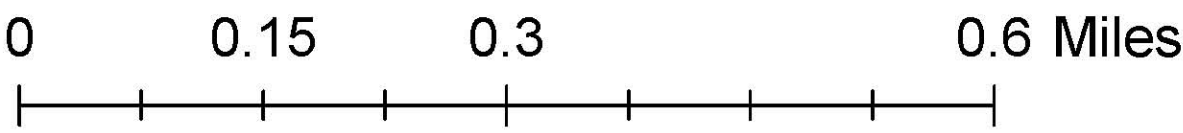
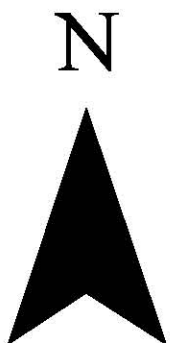
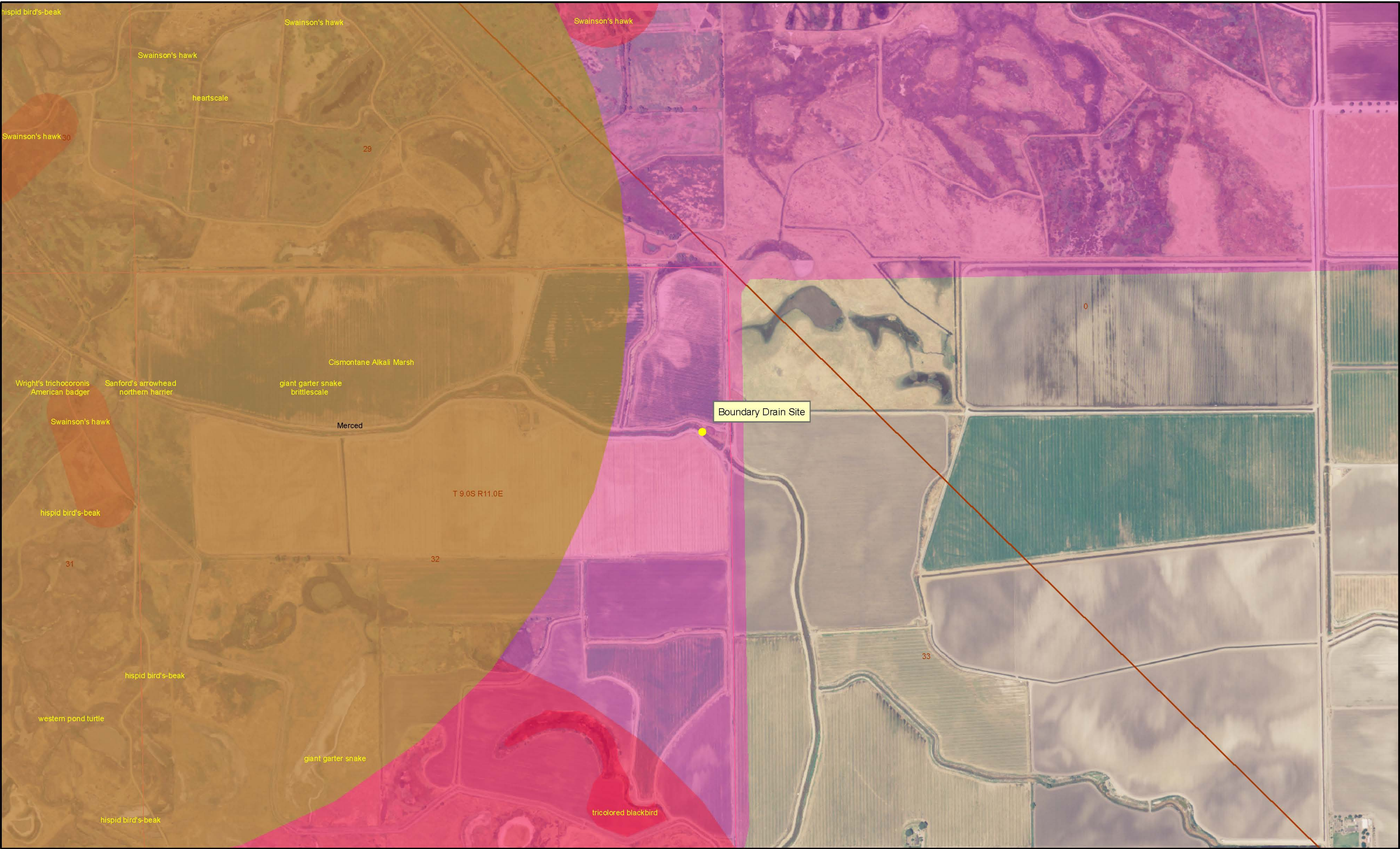


Figure 3-1. CNDDDB Polygons for Boundary Drain Site



CNDDDB Polygons for West Delta Drain Site

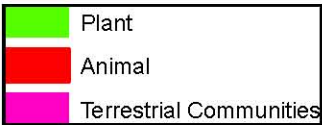
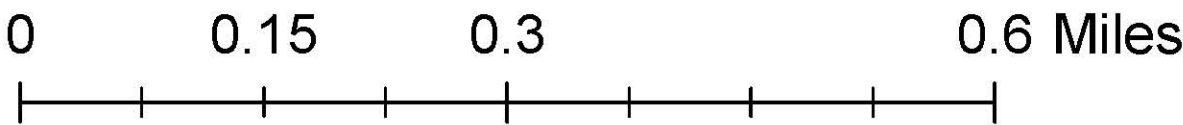
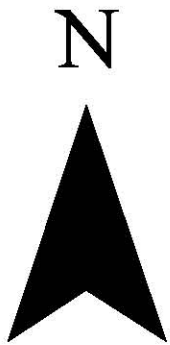
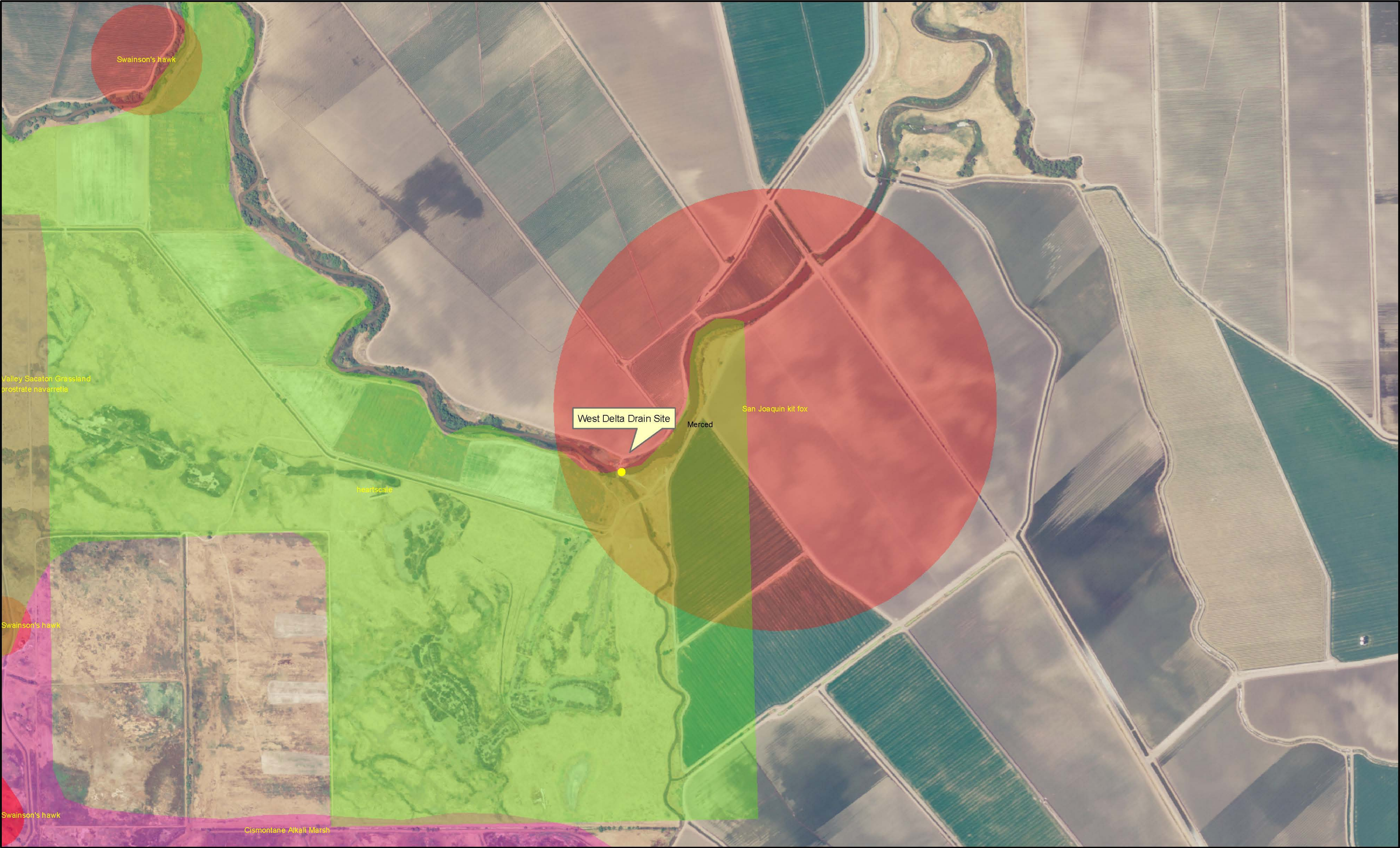


Figure 3-2. CNDDDB Polygons for West Delta Drain Site

3.1.2 Environmental Consequences

No Action

Under the No-Action Alternative, Reclamation would not award a Water Conservation Field Service Grant to HMRD. Disturbance of adjacent areas by agricultural activities and disturbance of the drains and berms due to maintenance would continue. The HMRD would also continue to use aquatic herbicides. Under the No-Action Alternative, the project area would continue not to provide suitable habitat for special-status species and would not support any native habitat.

Proposed Action

Under the Proposed Action, because of the absence of native habitat and most special-status species, the project would not impact these resources. If water is flowing in the channels, the use of bypasses would ensure that the Los Banos Wildlife Management Area continues to receive any water that it would otherwise. Therefore, the Proposed Action would not affect biological resources in the Los Banos Wildlife Management Area. Avoidance measures are needed and would be implemented to protect the giant garter snake, because although the project areas would not support the species on any permanent or regular basis, they are close enough to suitable habitat that there could be a stray occurrence in the area. The Proposed Action would have no direct or indirect impacts on special-status biological resources, and therefore it would not contribute cumulatively to impacts on these resources in the project area. Impacts on more common species would be minimized, would not rise to a population level, and therefore would only contribute minimally to cumulative impacts on these resources.

3.2 Cultural Resources

3.2.1 Affected Environment

Cultural resources is a broad term that is intended to include prehistoric, historic, and traditional cultural properties. The NHPA of 1966 is the primary Federal legislation which outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires that the Federal Government take into account the effects of an undertaking on cultural resources that are listed or eligible for listing on the National Register of Historic Places. Cultural resources eligible for listing on the National Register of Historic Places are known as historic properties.

Cultural resources in this area are generally archaeological in nature and are often found in association with water courses. It is possible that some cultural resources lie undiscovered across the San Joaquin Valley, but there has been no systematic study. The area has been cultivated for decades and routinely tilled and irrigated or has been subject to the construction and ongoing maintenance of the drains. Any archaeological resources that may be present have likely been impacted by these agricultural practices.

3.2.2 Environmental Consequences

No Action

There are no impacts to cultural resources under the No Action Alternative since there would be no ground disturbance and conditions would remain the same as existing conditions.

Proposed Action

Reclamation has conducted a field survey of the project sites and has concluded that consultation with the SHPO is required for the action due to the ground disturbing activities. Reclamation

further concluded that even though there would be construction activities, given the highly disturbed nature of the site, no cultural resources are likely to be impacted during construction. As no adverse impacts are expected to occur on cultural resources as a result of the Proposed Action, it would not contribute cumulatively to any impacts. The approval of this action would not occur until consultation with the SHPO has been completed.

3.3 Hydrology and Water Quality

3.3.1 Affected Environment

The Boundary Drain and West Delta Drain are essentially perennial waterways, although they may dry up in late summer/early fall during drier years, such as the current water year. The Boundary Drain is an agricultural drain, with a deep channel, which enters the Los Banos Wildlife Management Area from the southeast. The Boundary Drain serves as the primary water source for the east-central portion of the Los Banos Wildlife Management Area. The water conveyed in the Boundary Drain typically has a high salt content, but is not known to have elevated levels of selenium (please see Appendix 5). The water supply for the West Delta Drain is the Arroyo Canal, which receives usable agricultural return flows from the Grassland Water District. The West Delta Drain also serves the eastern portion of the Los Banos Wildlife Management Area.

3.3.2 Environmental Consequences

No Action

Under the No-Action Alternative, Reclamation would not award a Water Conservation Field Service Grant to HMRD. Use of aquatic herbicides would continue, per the HMRD's permits issued by the State Water Resources Control Board and Merced County. Water would continue to be conveyed as it currently is, with occasional spills and some inaccuracies in measurement of water deliveries.

Proposed Action

Under the Proposed Action, Reclamation would award the grant to the HMRD. This would stop spills and inaccuracies in water delivery. Temporary bypasses would be installed during construction if the channels are wet, in order to maintain sufficient downstream flows. Normal flows would be restored after construction. As construction would involve some minor grading and the use of concrete and fuels, there is a potential to affect water quality. However, the HMRD would implement BMPs to protect water quality. It is most likely that the channels would actually be dry during construction, due to the current hydrologic conditions. If so, there would not be any water quality impacts. Any construction-related debris would be removed immediately following the work.

The projects are expected to be authorized under Nationwide Permit No. 5 by the Corps, pursuant to section 404 of the Clean Water Act (CWA) (see section 3.4). Activities under Nationwide Permit No. 5 have been granted a CWA Section 401 Water Quality Certification by the State Water Resources Control Board, subject to specific conditions and notification requirements (see Appendix 6).

As with the No-Action Alternative, spraying of aquatic herbicides would continue, per the HMRD's permits issued by the California Water Resources Control Board and Merced County.

However, the project's potential to impact water quality is so small, especially given the implementation of appropriate BMPs, that it is not expected to result in any appreciable cumulative impact on water quality.

3.4 Waters of the United States

3.4.1 Affected Environment

The Boundary Drain conveys water from the project area northwest into Mud Slough, north to Salt Slough, eventually draining into the San Joaquin River. The West Delta Drain conveys water from the project area northwest into Salt Slough, eventually draining into the San Joaquin River. As these two drains are hydrologically connected to the San Joaquin River, they would be regulated by the Corps under section 404 of the CWA. No delineation of waters of the United States has been performed. The HMRD is instead assuming that the Corps has jurisdiction over the channels all the way to the very top of the berm. No hydrophytic vegetation (or any other vegetation) grows outside of the channel, probably because of the ongoing maintenance conducted by the HMRD.

3.4.2 Environmental Consequences

No Action

Under the No Action Alternative, waters of the United States would not be filled. The HMRD would continue to control vegetation under their maintenance activities, including removal of some sparse hydrophytic vegetation.

Proposed Action

For the Boundary Drain site, there would be approximately 21.3 cubic yards of discharge (36' x 12' x 6' x 6' x 0.67'), and for the West Delta Drain there would be approximately 20 cubic yards of discharge (45' x 0.5' x 6' x 6' x 0.67'), in addition to the temporary fill associated with the use of coffer dams. There would be a total of 0.012 acres of fill at the Boundary Drain site and a total of 0.009 acres of fill at the West Delta Drain site.

Each of the two projects (at each site) are single and complete projects (33 CFR 330.2[i]) that have independent utility from one another (neither of the two is dependent on the other for its justification). Therefore, for purposes of permitting under the CWA, these are two separate projects, even though Reclamation must address the proposed work at both sites as a single Proposed Action for purposes of compliance with other statutes (NEPA, ESA, and NHPA) because HMRD submitted one grant application for both.

The project has been designed to minimize the amount of fill as much as possible. An earlier design involved discharge of fill along the banks of the drains, but the plans were changed to create structures that would essentially be smaller artificial concrete channels inside of the drain channels. Each of the two projects would result in less than 25 cubic yards of discharge into open waters. This is below the limit for the preconstruction notification requirement for Nationwide Permit No. 5 (Corps 2007). For projects that involve less than 0.1 acre of fill, the Corps has the discretion to determine whether or not compensatory mitigation is required. The Corps was given a preliminary draft of this environmental assessment for review; no compensatory mitigation is required for either site. The adverse impact would be minimal,

would only impact a small portion of the drains, and would therefore not result in more than a very small cumulative impact on waters of the United States.

Section 4 Consultation and Coordination

4.1 Clean Water Act (33 USC §1251 et seq.)

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects, infrastructure development and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation. The Proposed Action falls under Nationwide Permit No. 5 and a preconstruction notification is not required. There would be less than 0.1 acre of fill at each site; the Corps has determined that compensatory mitigation is not required. An administrative draft of this environmental assessment was sent to the Corps for their review and comment, and the Corps will also be provided with a copy of the final NEPA document.

Section 401 of the CWA establishes a program to allow States and Tribes to review and approve, condition, or deny all Federal permits or licenses that might result in a discharge to State or Tribal waters, including wetlands. The Regional Water Quality Control Board administers the 401 program for the Central Valley region of California. Activities conducted under Nationwide Permit No. 5 have received a CWA Section 401 Water Quality Certification by the State Water Resources Control Board, subject to specific conditions and notification requirements.

4.2 Endangered Species Act (16 USC §1521 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior/Commerce, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

Reclamation has determined that the Proposed Action would have no effect on Federally listed or proposed species or critical habitat. The project includes measures to avoid effects on the giant garter snake; any deviations from the default work window would only occur following discussions between HMRD, DFG and the Service, and approval by DFG and the Service. The Service was previously contacted regarding the project (Maryann Owens), and will be provided with a copy of this environmental assessment for their review and information, but no consultation is required. No anadromous fishes or their critical habitat occur in the affected area, and so no consultation with the National Marine Fisheries Service is needed.

4.3 Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains. The project would occur at least partially in a floodplain. However, the Proposed Action does not increase the risk of flooding in any way, and would in fact reduce the possibility of spills from the drains.

Executive Order 11990 directs Federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. The order does not apply to the issuance by Federal agencies of permits, licenses, or allocations to private parties for activities involving wetlands on non-Federal property. Therefore, it is not applicable to this Proposed Action.

4.4 Fish and Wildlife Coordination Act (16 USC §661 et seq.)

The Fish and Wildlife Coordination Act requires that Federal agencies consult with fish and wildlife agencies (Federal and State) whenever a body of water is proposed to be impounded, diverted, controlled, or otherwise modified, either by the Federal agency, or by a public or private agency under a Federal permit or license. This project is only proposed to be funded by Reclamation (the lead Federal Agency). It is not an action that would be either carried out or permitted by the lead Federal agency. Therefore the Fish and Wildlife Coordination Act does not apply.

Therefore, it is not applicable to this Proposed Action.

4.5 Indian Trust Assets

The proposed action does not affect Indian Trust Assets. The nearest ITA is a Public Domain Allotment, which is approximately 53 miles NE of the project location.

4.6 National Historic Preservation Act (15 USC §470 et seq.)

Section 106 of the NHPA requires Federal agencies to evaluate the effects of Federal undertakings on historical, archaeological and cultural resources. Federal agencies are required to consider the effects of their undertakings on historic resources, and to give the Advisory Council a reasonable opportunity to comment on those undertakings.

Reclamation has concluded that even though there would be construction activities, given the highly disturbed nature of the site, no cultural resources are likely to be impacted during construction. However, due to the ground disturbance that would occur, the undertaking is the type of activity that has the potential to affect cultural resources. As a result, Reclamation will enter into consultation with the SHPO on a finding of no adverse effect as outlined in the regulations at 36 CFR 800.5(b). Approval of this action would not occur until the culmination of consultation.

Section 5 List of Preparers and Reviewers

Shauna McDonald, Wildlife Biologist, Bureau of Reclamation, SCCAO – preparer

Adam Nickels, Archeologist, Bureau of Reclamation, Mid-Pacific Regional Office – reviewer

Patti Clinton, Natural Resource Specialist, Bureau of Reclamation, SCCAO – reviewer

David Woolley, Water Conservation Specialist, Bureau of Reclamation, SCCAO – reviewer

Kathleen Dadey, Ph.D., Chief, California South Branch, Regulatory Division, U.S. Army Corps of Engineers, Sacramento District – reviewer

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